

SEQUENCE LISTING



<110> Her Majesty The Queen In Right Of Canada, As Represented By The  
Ministry Of Agriculture; Agri-Food Canada Both Of Canada  
Harris, Linda J.  
Gleddie, Stephen C.

<120> Tolerance Of Trichothecene Mycotoxins In Plants Through The  
Modification Of The Ribosomal Protein L3 Gene

<130> 08-874401US2

<140> US 09/725,957

<141> 2000-11-30

<150> US 09/567,326

<151> 2000-05-09

<150> US 08/909,828

<151> 1997-08-12

<160> 18

<170> PatentIn version 3.0

<210> 1

<211> 350

<212> PRT

<213> Saccharomyces cerevisiae (wild-type)

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4) 5)

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 Glu Val Arg Arg Arg Phe Tyr Lys Asn Trp Cys Lys Ser Lys Lys Lys  
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 Ala Phe Thr Lys Tyr Ala Leu Lys Tyr Asp Ser Asp Ala Gly Lys Lys  
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 Glu Ile Gln Met Gln Leu Glu Lys Met Lys Lys Tyr Ala Ser Ile Val  
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 Asp Lys Val Asp Tyr Gly Tyr Lys Phe Phe Glu Lys Glu Ile Pro Val  
 195 200 205  
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Gly	Lys 290	Ala	Gly	Gln	Glu	Thr 295	His	Asp	Ala	Ser	Thr 300	Glu	Phe	Asp	Arg
Thr 305	Glu	Lys	Asp	Ile	Thr 310	Pro	Met	Gly	Gly	Phe 315	Pro	His	Tyr	Gly	Ile 320
Val	Lys	Gly	Asp	Tyr 325	Leu	Met	Ile	Lys	Gly 330	Cys	Cys	Val	Gly	Pro 335	Lys
Lys	Arg	Val	Val 340	Thr	Leu	Arg	Gln	Ser 345	Leu	Leu	Lys	Gln	Thr 350	Ser	Arg
Leu	Ala 355	Leu	Glu	Glu	Ile	Lys	Leu 360	Lys	Phe	Ile	Asp	Thr 365	Ser	Ser	Lys
Phe 370	Gly	His	Gly	Arg	Phe	Gln 375	Thr	Thr	Asp	Glu	Lys 380	Gln	Arg	Phe	Phe

Gly Lys Leu Lys Ala  
385

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<210> 15
<211> 389
<212> PRT
<213> Sorghum vulgare
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<400> 15

Met	Ser	His	Arg	Lys	Phe	Glu	His	Pro	Arg	His	Gly	Ser	Leu	Ser	Phe
1				5					10					15	
Leu	Pro	Asn	Lys	Arg	Ser	Ser	Arg	His	Arg	Gly	Lys	Val	Lys	Ser	Phe
			20					25					30		
Pro	Arg	Asp	Asp	Pro	Lys	Lys	Pro	Cys	His	Leu	Thr	Ala	Phe	Val	Gly
		35					40					45			

Tyr Lys Ala Gly Met Thr His Ile Val Arg Glu Val Glu Lys Pro Gly  
 50 55 60  
 Ser Lys Leu His Lys Lys Glu Thr Cys Glu Ala Val Thr Ile Ile Glu  
 65 70 75 80  
 Thr Pro Pro Leu Val Ile Val Gly Leu Val Ala Tyr Val Lys Thr Pro  
 85 90 95  
 Arg Gly Leu Arg Thr Leu Asn Ser Val Trp Ala Gln His Leu Ser Glu  
 100 105 110  
 Glu Val Arg Arg Arg Phe Tyr Lys Asn Trp Cys Lys Ser Lys Lys Lys  
 115 120 125  
 Ala Phe Thr Lys Tyr Ala Leu Lys Tyr Asp Ser Asp Ala Gly Lys Lys  
 130 135 140  
 Glu Ile Gln Leu Gln Leu Glu Lys Met Lys Lys Tyr Ala Ser Val Ile  
 145 150 155 160  
 Arg Val Ile Ala His Thr Gln Ile Lys Lys Met Lys Gly Leu Lys Gln  
 165 170 175  
 Lys Lys Ala His Leu Met Glu Ile Gln Val Asn Gly Gly Thr Ile Ala  
 180 185 190  
 Asp Lys Val Asp Tyr Gly Tyr Lys Phe Phe Glu Lys Glu Val Pro Val  
 195 200 205  
 Asp Ala Val Phe Gln Lys Asp Glu Met Ile Asp Ile Ile Gly Val Thr  
 210 215 220  
 Lys Gly Lys Gly Tyr Glu Gly Val Val Thr Arg Trp Gly Val Thr Arg  
 225 230 235 240  
 Leu Pro Arg Lys Thr His Arg Gly Leu Arg Lys Val Ala Cys Ile Gly  
 245 250 255  
 Ala Trp His Pro Ala Arg Val Ser Tyr Thr Val Ala Arg Ala Gly Gln  
 260 265 270  
 Asn Gly Tyr His His Arg Thr Glu Met Asn Lys Lys Val Tyr Lys Ile  
 275 280 285  
 Gly Lys Ala Gly Gln Glu Ser His Asp Ala Ser Thr Glu Phe Asp Arg  
 290 295 300  
 Thr Glu Lys Asp Ile Thr Pro Met Gly Gly Phe Pro His Tyr Gly Ile  
 305 310 315 320  
 Val Lys Gly Asp Tyr Leu Met Ile Lys Gly Cys Cys Val Gly Pro Lys  
 325 330 335  
 Lys Arg Val Val Thr Leu Arg Gln Ser Leu Leu Lys Gln Thr Ser Arg  
 340 345 350  
 Leu Ala Leu Glu Glu Ile Lys Leu Lys Phe Ile Asp Thr Ser Ser Lys  
 355 360 365

Phe Gly His Gly Arg Phe Gln Thr Thr Asp Glu Lys Gln Lys Phe Tyr  
 370 375 380

Gly Lys Gln Lys Ala  
 385

<210> 16  
 <211> 389  
 <212> PRT  
 <213> Triticum aestivum

<400> 16

Met Ser His Arg Lys Phe Glu His Pro Arg His Gly Ser Leu Gly Phe  
 1 5 10 15

Leu Pro Arg Lys Arg Cys Ser Arg His Arg Gly Lys Val Lys Ala Phe  
 20 25 30

Pro Arg Asp Asp Gln Ser Lys Lys Cys His Leu Thr Ala Phe Leu Gly  
 35 40 45

Tyr Lys Ala Gly Met Thr His Ile Val Arg Glu Val Glu Lys Pro Gly  
 50 55 60

Ser Lys Leu His Lys Lys Glu Thr Cys Glu Ala Val Thr Ile Val Glu  
 65 70 75 80

Thr Pro Pro Ile Val Ile Val Gly Leu Val Ala Tyr Val Lys Thr Pro  
 85 90 95

Arg Gly Leu Arg Thr Leu Asn Ser Val Trp Ala Gln His Leu Ser Glu  
 100 105 110

Asp Val Arg Arg Arg Phe Tyr Lys Asn Trp Cys Lys Ser Lys Lys Lys  
 115 120 125

Ala Phe Thr Lys Tyr Ala Leu Lys Tyr Asp Ser Asp Ala Gly Lys Lys  
 130 135 140

Glu Ile Gln Met Gln Leu Glu Lys Met Lys Lys Tyr Ala Thr Val Val  
 145 150 155 160

Arg Val Ile Ala His Thr Gln Ile Arg Lys Met Lys Gly Leu Lys Gln  
 165 170 175

Lys Lys Ala His Leu Met Glu Ile Gln Ile Asn Gly Gly Thr Ile Ala  
 180 185 190

Asp Lys Val Asp Tyr Gly Tyr Asn Phe Phe Glu Lys Glu Val Pro Ile  
 195 200 205

Asp Ala Val Phe Gln Lys Asp Glu Met Ile Asp Ile Ile Gly Val Thr  
 210 215 220

Lys Gly Lys Gly Tyr Glu Gly Val Val Thr Arg Trp Gly Val Thr Arg  
 225 230 235 240

Leu Pro Arg Lys Thr His Arg Gly Leu Arg Lys Val Ala Cys Ile Gly  
 245 250 255

Ala Trp His Pro Ala Arg Val Ser Tyr Thr Val Ala Arg Ala Gly Gln  
 260 265 270

Asn Gly Tyr His His Arg Thr Glu Met Asn Lys Lys Val Tyr Lys Ile  
 275 280 285

Gly Lys Val Gly Gln Glu Thr His Asp Ala Ser Thr Glu Phe Asp Arg  
 290 295 300

Thr Glu Lys Asp Ile Thr Pro Met Gly Gly Phe Pro His Tyr Gly Val  
 305 310 315 320

Val Lys Ala Asp Tyr Leu Met Ile Lys Gly Cys Cys Val Gly Pro Lys  
 325 330 335

Lys Arg Val Val Thr Leu Arg Gln Ser Leu Leu Lys Gln Thr Ser Arg  
 340 345 350

Leu Ala Leu Glu Glu Ile Lys Leu Lys Phe Val Asp Thr Ser Ser Lys  
 355 360 365

Phe Gly His Gly Arg Phe Gln Thr Thr Asp Glu Lys Gln Arg Phe Tyr  
 370 375 380

Gly Lys Leu Lys Ala  
 385

<210> 17  
 <211> 389  
 <212> PRT  
 <213> Hordeum vulgare

<220>  
 <221> misc\_feature  
 <223> Xaa="ANY AMINO ACID SEQUENCE"

<400> 17

Met Ser His Arg Lys Phe Glu His Pro Arg His Gly Ser Leu Gly Phe  
 1 5 10 15

Leu Pro Arg Lys Arg Cys Ser Arg His Arg Gly Lys Val Lys Ala Phe  
 20 25 30

Pro Arg Asp Asp Gln Ser Lys Lys Cys His Leu Thr Ala Phe Leu Gly  
 35 40 45

Tyr Lys Ala Gly Met Thr His Ile Val Arg Glu Val Glu Lys Pro Gly  
 50 55 60

Ser Lys Leu His Lys Lys Glu Thr Cys Glu Ala Val Thr Ile Val Glu  
 65 70 75 80

Thr Pro Pro Ile Val Ile Val Gly Leu Val Ala Tyr Val Lys Thr Pro  
 85 90 95

Arg Gly Leu Arg Thr Leu Asn Ser Val Trp Ala Gln His Leu Ser Glu  
 100 105 110

Asp Val Arg Arg Arg Phe Tyr Lys Asn Trp Cys Lys Ser Lys Lys Lys  
 115 120 125  
 Ala Phe Thr Lys Tyr Ala Leu Lys Tyr Asp Ser Asp Ala Gly Lys Lys  
 130 135 140  
 Glu Ile Gln Met Gln Leu Glu Lys Met Lys Lys Tyr Ala Thr Val Val  
 145 150 155 160  
 Arg Val Ile Ala His Thr Gln Ile Arg Lys Met Lys Gly Leu Lys Gln  
 165 170 175  
 Lys Lys Ala His Leu Met Glu Ile Gln Ile Asn Gly Gly Thr Ile Ala  
 180 185 190  
 Asp Lys Val Asp Tyr Gly Tyr Asn Phe Phe Glu Lys Glu Val Pro Ile  
 195 200 205  
 Asp Ala Val Phe Gln Lys Asp Glu Met Ile Asp Ile Ile Gly Val Thr  
 210 215 220  
 Lys Gly Lys Gly Tyr Glu Gly Val Val Thr Arg Trp Gly Val Thr Arg  
 225 230 235 240  
 Leu Pro Arg Lys Thr His Arg Gly Leu Arg Lys Val Ala Cys Ile Gly  
 245 250 255  
 Ala Trp His Pro Ala Arg Val Ser Tyr Thr Val Ala Arg Ala Gly Gln  
 260 265 270  
 Asn Gly Tyr His His Arg Thr Glu Met Asn Lys Lys Val Tyr Lys Ile  
 275 280 285  
 Gly Lys Val Gly Gln Glu Thr His Asp Ala Ser Thr Glu Phe Asp Arg  
 290 295 300  
 Thr Glu Lys Asp Ile Thr Pro Met Gly Gly Phe Pro His Tyr Gly Val  
 305 310 315 320  
 Val Lys Ala Asp Tyr Leu Met Ile Lys Gly Cys Cys Val Gly Pro Lys  
 325 330 335  
 Lys Arg Val Val Thr Leu Arg Gln Ser Leu Leu Lys Gln Thr Ser Arg  
 340 345 350  
 Leu Ala Leu Glu Glu Ile Lys Leu Lys Leu Xaa Asp Thr Ser Phe Lys  
 355 360 365  
 Phe Gly His Gly Pro Phe Gln Asp Thr Asp Glu Lys Gln Arg Phe Phe  
 370 375 380  
 Gly Lys Leu Lys Ala  
 385

<210> 18  
 <211> 330  
 <212> PRT  
 <213> Avena sativa

<400> 18



Trp	His	Glu	Pro	Gly	Ser	Lys	Leu	His	Lys	Lys	Glu	Thr	Cys	Glu	Ala	1	5	10	15
Val	Thr	Ile	Val	Glu	Thr	Pro	Pro	Ile	Val	Ile	Val	Gly	Leu	Val	Ala	20	25	30	
Tyr	Val	Lys	Thr	Pro	Arg	Gly	Leu	Arg	Thr	Leu	Asn	Thr	Val	Trp	Ala	35	40	45	
Gln	His	Leu	Ser	Glu	Asp	Val	Arg	Arg	Arg	Phe	Tyr	Lys	Asn	Trp	Cys	50	55	60	
Lys	Ser	Lys	Lys	Lys	Ala	Phe	Thr	Lys	Tyr	Ala	Leu	Lys	Tyr	Asp	Ser	65	70	75	80
Asp	Ala	Gly	Lys	Lys	Glu	Ile	Gln	Leu	Gln	Leu	Glu	Lys	Met	Lys	Lys	85	90	95	
Tyr	Gly	Thr	Val	Ile	Arg	Val	Ile	Ala	His	Thr	Gln	Ile	Arg	Lys	Met	100	105	110	
Lys	Gly	Leu	Lys	Gln	Lys	Lys	Ala	His	Leu	Met	Glu	Ile	Gln	Val	Asn	115	120	125	
Gly	Gly	Thr	Ile	Ala	Asp	Lys	Val	Asp	Tyr	Gly	Tyr	Asn	Phe	Phe	Glu	130	135	140	
Lys	Glu	Val	Pro	Ile	Asp	Ala	Val	Phe	Gln	Lys	Asp	Glu	Met	Ile	Asp	145	150	155	160
Ile	Ile	Gly	Val	Thr	Lys	Gly	Lys	Gly	Tyr	Glu	Gly	Val	Val	Thr	Arg	165	170	175	
Trp	Gly	Val	Thr	Arg	Leu	Pro	Arg	Lys	Thr	His	Arg	Gly	Leu	Arg	Lys	180	185	190	
Val	Ala	Cys	Ile	Gly	Ala	Trp	His	Pro	Ala	Arg	Val	Ser	Tyr	Thr	Val	195	200	205	
Ala	Arg	Ala	Gly	Gln	Asn	Gly	Tyr	His	His	Arg	Thr	Glu	Met	Asn	Lys	210	215	220	
Lys	Ile	Tyr	Lys	Ile	Gly	Lys	Val	Gly	Gln	Glu	Thr	His	Asp	Ala	Ser	225	230	235	240
Thr	Glu	Phe	Asp	Arg	Thr	Glu	Lys	Asp	Ile	Thr	Pro	Met	Gly	Gly	Phe	245	250	255	
Pro	His	Tyr	Gly	Val	Val	Lys	Gly	Asp	Tyr	Leu	Met	Ile	Lys	Gly	Cys	260	265	270	
Cys	Val	Gly	Pro	Lys	Lys	Arg	Val	Val	Thr	Leu	Arg	Gln	Ser	Leu	Leu	275	280	285	
Lys	Gln	Thr	Ser	Arg	Leu	Ala	Leu	Glu	Glu	Ile	Lys	Leu	Lys	Phe	Val	290	295	300	
Asp	Thr	Ser	Ser	Lys	Phe	Gly	His	Gly	Arg	Phe	Gln	Thr	Thr	Asp	Glu	305	310	315	320

Lys Gln Arg Phe Tyr Gly Lys Leu Lys Ala  
325 330